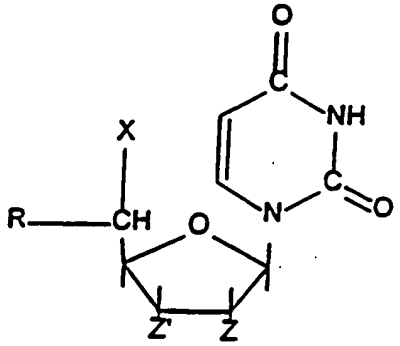
WE CLAIM:

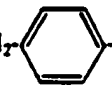
1. A combinatorial library comprising a predetermined collection f nucleoside peptide molecules for inhibiting the transfer of a sugar from a selected sugar nucleotide donor to a selected acceptor by a carbohydrate processing enzyme wherein a nucleoside peptide molecule comprises (a) a nucleoside monomer; (b) a spacer monomer coupled to the nucleoside monomer wherein the spacer monomer comprises one or more amide linked amino acid residues or mimetics thereof; and (c) cap monomers attached to the spacer monomer; wherein the nucleoside peptide molecules differ from each other as to the identity of at least one element of the nucleoside monomer, spacer monomer or cap monomers.
2. A combinatorial library as claimed in claim 1 wherein the carbohydrate processing enzyme is a glycosyltransferase involved in the biosynthesis of glycoproteins, glycolipids, or glycosyl phosphatidyl inositols.
3. A combinatorial library as claimed in claim 2 wherein the carbohydrate processing enzyme is an N-acetylglucosaminyltransferase I, II, II, IV, or V, or β-1,3-galactosyl-O-glycosyl-glycoprotein β 1,6-N-acetylgucosaminyl transferase (core 2 GlcNAc).
4. A combinatorial library as claimed in claim 1, ~~2, or 3~~ wherein the nucleoside monomer is uridyl, 2'-deoxyuridyl, or 5'-amino-5'deoxy-2',3'-O-isopropylidine uridyl.
5. A combinatorial library as claimed in ~~any one of the preceding claims~~ claim 1 wherein the cap monomer is methyl (Me), formyl (CHO), ethyl (Et), acetyl (Ac), t-butyl (t-bu), anisyl, trifluoroacetyl (Tfa), benzoyl (Bz), 4-methylbenzyl (Meb), thioanizyl, thiocresyl, benzyloxymethyl, 4-nitrophenyl (Pnp), benzyloxycarbonyl (Z), 2-nitrobenzoyl (NBz), 2-nitrophenylsulphenyl (Nps), 4-toluenesulphonyl (Tosyl, Tos), pentafluorophenyl (Pfp), diphenylmethyl (Dpm), 2-chlorobenzyloxycarbonyl (Cl-Z), 2,4,5-trichlorophenyl, 2-bromobenzyloxycarbonyl (Br-Z), triphenylmethyl (Trityl, Trt), 2,2,5,7,8-pentamethyl-chroman-6-sulphonyl (Pmc), t-butyloxycarbonyl (Boc), benzyl (Bzl), benzyloxymethyl (Bom), and 9-fluorenylmethyloxycarbonyl (Fmoc).
6. A combinatorial library as claimed in ~~any one of the preceding claims~~ claim 1 wherein the spacer monomer is a single amide linked amino acid, an amide linked dipeptide, or an amide linked tripeptide, or a mimetic thereof.
7. A nucleoside peptide molecule comprising a nucleoside monomer; a spacer monomer coupled to a nucleoside monomer, wherein the spacer monomer comprises one or more amide linked amino acid residues, or a mimetic thereof; and cap monomers attached to the spacer monomer.
8. A nucleoside peptide molecule of the formula I:

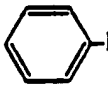
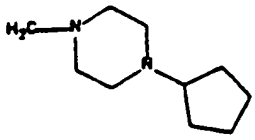


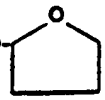
I

where X is H, –COOH, -OSO_3H, or $(CH_2)qSO_3H$ where q is 0 or 1, and R represents $(Y)_m$ where Y is an amide linked amino acid residue and m is 1-3, Z' and Z are the same or different and represent hydroxyl or alkoxy, or Z' and Z together form an acetonide group, and wherein free NH_2 groups in the compound of the formula I are capped with a cap monomer.

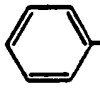
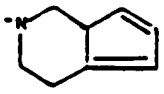
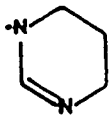
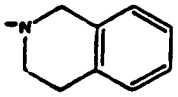
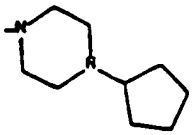
9. A nucleoside peptide molecule of the formula I as claimed in claim 8 wherein X is H, –COOH, -OSO_3H, or $(CH_2)qSO_3H$ where q is 0 or 1, Z and Z' are both hydroxyl or together form an acetonide group. R represents $-NHCOR^1$, wherein R^1 represents

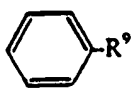
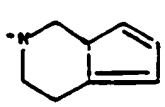
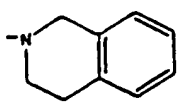
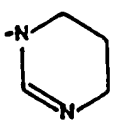
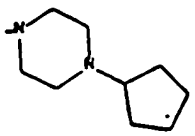
(a) $-C(CH_3)(NH_2)CH_2$-  -R^2, wherein R^2 is alkoxy; or

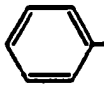
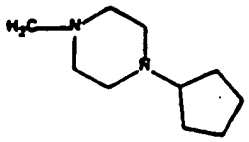
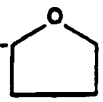
(b) $-CHR^3R^4$ wherein R^3 is hydrogen or $-NH_2$, and R^4 is  -R^5 wherein R^5 is halogen, alkyl, or alkoxy,  , $-CH_2N(CH_3)CH_2CH_2R^6$ or $-N(CH_3)CH_2CH_2R^6$ wherein R^6 is halogen,



$-CH_2N(CH_3)CO$-, $-CH_2N(C_2H_5)CH_2CH(CH_3)OH$, or $-CH_2NHCOCH(CH_3)_2$, or

R^4 represents $(CH_2)_nR^8$ wherein n = 0 to 5, R^8 is halogen,  -R^9 wherein R^9 is alkoxy,  ,  ,  ,  , $-N(CH_3)CH_2CH_2R^{10}$ wherein R^{10} is halogen, $-N(C_2H_5)CH_2CH(CH_3)OH$, or $-NHCOCH(CH_3)_2$ and wherein free amino groups are protected with a cap monomer.

10. A nucleoside peptide molecule of the formula I as claimed in claim 8 wherein X is –COOH, and R represents $-NHCOR^1$ wherein R^1 represents $-CHR^3R^4$ wherein R^3 is hydrogen, and R^4 is $(CH_2)_nR^8$ wherein n = 0 to 5, preferably 1 to 4, R^8 is halogen,  -R^9 wherein R^9 is alkoxy, halogen, or alkyl,  ,  ,  ,  , r $-N(CH_3)CH_2CH_2R^{10}$ wherein R^{10} is halogen, $-N(C_2H_5)CH_2CH(CH_3)OH$, or $-NHCOCH(CH_3)_2$.

11. A nucleoside peptide m lecule of the formula I as claimed in claim 8 wherein . X is –COOH, and R represents –NHCOR^1 wherein R^1 represents –CHR^{3}R^4 wherein R^3 represents –NH$_2$ and R^4 is  –R^5 wherein R^5 is halogen, alkyl or alkoxy,  -CH$_2$N(CH$_3$)CH$_2$CH$_2$R^6 wherein R^6 is halogen, -CH$_2$N(C$_2$H$_5$)CH$_2$CH(CH$_3$)OH, –CH$_2$NHCOCH(CH$_3$)$_2$ or -CH$_2$N(CH$_3$)CO- 

12. A nucleoside peptide molecule of the formula I as claimed in claim 8 wherein X is -OSO$_3$H, or (CH$_2$)qSO$_3$H where q is 0 or 1, R represents –NHCOR^1 wherein R^1 represents –CHR^{3}R^4 wherein R^3 represents –NH$_2$ and R^4 is

 -R^5 wherein R^5 is halogen, alkyl, or alkoxy, -CH$_2$N(C$_2$H$_5$)CH$_2$CH(CH$_3$)OH, or –CH$_2$NHCOCH(CH$_3$)$_2$.

13. A process for preparing a combinatorial library containing a predetermined collection of nucleoside peptide molecules for inhibiting the transfer of a sugar from a selected sugar nucleotide donor having a heterocyclic amine base, to a selected acceptor by a carbohydrate processing enzyme comprising:

(a) coupling one or more amino acids, or mimetics thereof to a nucleoside monomer unit which comprises a heterocyclic amine base coupled to a sugar wherein the base corresponds to the heterocyclic amine base of the sugar nucleotide donor, or a modified form or analogue of the base; and

(b) capping any free functional groups or amine groups with a cap monomer unit.

14. A method of using a combinatorial library as claimed in claim 1 for screening for pharmacologically active molecules.

15. A solid-phase bioassay for identifying a compound having inhibitory activity against a carbohydrate processing enzyme which comprises (a) coupling an acceptor for the carbohydrate processing enzyme to a polymer and coating onto a carrier; (b) adding a carbohydrate processing enzyme, a sugar nucleotide donor labeled with a detectable substance, and a test compound; (c) measuring the detectable change produced by the detectable substance; and (d) comparing to a control in the absence f the test compound wherein a decrease in the amount of detectable substance with the test compound indicates that the test compound has inhibitory activity against the enzyme.

16. A method for identifying a compound that inhibits N-linked oligosaccharide processing comprising (a) reacting a test compound with cells expressing N-linked oligosaccharides in the presence of L-PHA and measuring alkaline phosphatase activity; and (b) comparing to a control in the absence of the compound wherein an increase in alkaline phosphatase activity indicates that the compound inhibits N-linked oligosaccharide processing.

17. A pharmaceutical composition containing a compound identified by a method as claimed in ~~any one of claims 14, 15, or 16.~~ claim 14

add A1